U. S. Orders Thorough Scrutiny of All Packages Sent By Air Mail

THE AIR LINE PILOT

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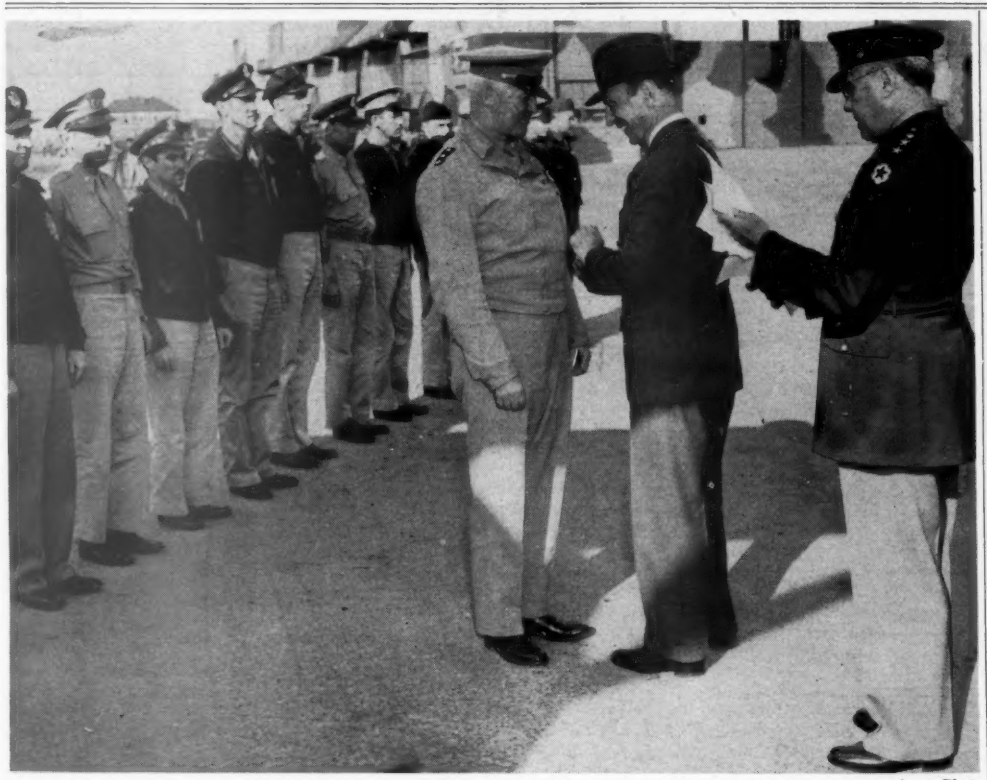
Carrier-Pilot Overseas Wage Mediation Meetings Last 18 Days



—Acme Photo

EXTRAORDINARY **Here's smiling Lieut. Gen. H. H. (Hap) Arnold as he receives the Distinguished Service Medal for his participation in a recent record-breaking flight from Brisbane, Australia, to San Francisco, Calif. The General is a firm believer in the psychology of smiling one's way through life, and the many pilots whom he commands rarely see their leader without his strong, ruddy face wreathed in a smile. This has earned him the nickname of "Hap." Seeing the General receive the DSM is news, but the smile is routine. The General was one of the very first pilots in Uncle Sam's Army to learn to fly, and his life has been a moving, living symbol of the development of the most fascinating of all developments—men against the air. When little more than a boy, he fearlessly rode an awkward arrangement of bamboo poles, tape, and linen across the skies to demonstrate to the United States government that a new element—air force—had come, and come to stay, to protect a proud and free people. As a man, he is now directing this element, which he was so instrumental in developing, against the world tyrants to protect the way of free men. In the picture's background is the valiant and skillful crew which accompanied the General on one of the fastest and most amazing military flights yet recorded—a world-record 35-hour-53-minute dash from Brisbane to San Francisco. This flight was a sequel to an inspection tour of the numerous Air Corps fronts of the Pacific. The crew is unidentified with the exception of the two military-looking gentlemen at the extreme left of the line. First is Maj. C. F. Skannal, Denver, copilot on the flight and a furloughed American Airlines pilot on active duty for the duration. Next stands Maj. C. A. Peterson, top pilot of the flight, who stems from the great state of Minnesota. He is a former United Air Lines pilot and is now a regular Army officer and aide to General Arnold. Who was it who said that air line pilots were creatures of routine and would get lost if they ever got off the beaten path? Tish! Tish! Somebody's face must be very red! The smiling gentleman presenting the medal is Undersecretary of War for Air Robert H. Lovett. Reading the citation is Maj. Gen. James A. Ulio, Adjutant General of the Army.**

Guard Against Air Sabotage

The post office department has recently ruled that no package may be accepted for transmission by air mail until it has been examined by a postal employee to make certain no inflammable, explosive, or other unmailable matter is enclosed.

This ruling is directly in line with suggestions for such precautions advanced by ALPA's Central Executive Council as far back as Dec. 15, 1941. At that time, the CEC recommended that the matter of guarding against sabotage to our air liners be called to the attention of the Air Transport Association, the American Express Company, and the CAA. Each of these agencies, upon being contacted, declared that they were aware of the dangers of "in the air" explosions and were taking means to guard against it.

In the latest ruling, Postmaster Gen. Frank Walker has ordered that, to be handled by air mail, every sealed package, parcel, or other sealed article, except ordinary letters, must be endorsed to provide opening for postal inspection.

Parcels should be taken unsealed to postal stations for inspection. Those deposited in street mail boxes should be ready for easy opening and re-sealing, bear return address and this phrase: "Postmaster: This package may be opened for postal inspection." Failure to do this will cause parcels to be sent by rail.

Veteran Mediator Bickers Presides

What is left of the month of October—with Oct. 5 to Oct. 23 deleted (eighteen days), taken up with the series of overseas intercontinental pilots' wage, rules, and working conditions mediation conferences — doesn't amount to much.

Conference Began Oct. 5

These conferences began on Oct. 5 at the offices of the National Mediation Board at 10

a. m., Mediator Thomas Bickers presiding. The companies were represented at these meetings by C. Bedell Monro, President, PCA; T. E. Braniff, President and owner of Braniff Airways; J. A. Collings, Vice-President, Operations, TWA; J. A. Herlihy, Executive Vice-President, Operations, UAL; R. L. Mitchell, Assistant Operations Manager, AA; Douglas Campbell, Vice-President, Panagra; and R. M. McCraith, Director, Personnel

(Continued on Page 8, Col. 1)

—Douglas Aircraft Photo

F.D.R. TAKES A LOOK ***When President Roosevelt made his recent 8,754-mile "swing around the country" to get his first look-see at America's war effort, aircraft plants ranked high on the list of stops on his itinerary. One such stop was made at the Douglas Aircraft Company's Long Beach, Calif., plant. The above picture shows (L. to r.) the President; Donald W. Douglas, President of Douglas Aircraft Company; Gov. Culbert L. Olson of California, and Frederic W. Conant, Douglas Vice-President in Charge of Manufacturing, as they inspected the plant's humming assembly lines and watched completed bombers and transports roll out the door. Roosevelt's meeting with Douglas was a reminder of the time when, shortly after Dec. 7, the President called for an all-out effort in the building of military aircraft and laid down figures that appeared to be extravagant beyond the point of wildest imagination. Douglas then became the spokesman for the entire aircraft industry when he calmly set his jaw and said, "We can do it!" That is exactly what is happening. Douglas, in addition to being a genius in the construction of military aircraft, is the builder of practically all of the country's air liners which made air line history prior to Pearl Harbor. Upon completion of his tour, carried out in wartime secrecy, the President reported at a press conference: the nation's spirit—outside of Washington—is excellent; war production is close to top efficiency and by December the production rate will be 94 to 95 per cent of the schedule set last January. What appeared to please the Commander in Chief most during his amazing tour of our country geared to a total war, was the fact that the U. S. A.'s solid citizenry is 100% behind an all-out effort to win the war and establish a permanent peace.***

LATE NEWS IN BRIEF

Hope

Even at this late date, some hope is still held for the safety of Capt. Eddie Rickenbacker and his crew, since they were using a PBY flying boat. This type of plane has been known to float as long as nine days. Capt. William T. Cherry, Jr., furloughed American Airlines pilot, was a member of the crew.

Shattered

Careening through the air at a 333 mph clip, a bomber recently reached England after taking just a few minutes more than six hours to make the 2,000-mile west-east crossing from Newfoundland. This new record was established since the previously announced fastest time in May. Knowledge of the fastest crossings would in themselves be of little use to the Nazis, but the practice of publishing them is frowned on by the British air ministry because it encourages a tendency on the part of pilots to stage impromptu races.

ALPA-Sponsored Flashing Tail Light for Air Liners a Success

Approximately three years ago several of the line pilots experienced narrow escapes from air collisions because of the ineffectiveness of the old type air liner tail light while flying in inclement weather and over heavily populated areas and around airports.

These instances were reported to ALPA Headquarters and the matter was discussed at several meetings of the Association's Air Traffic Control and Airway Aids Advisory Committee. It seems that the principal difficulty with the conventional non-blinker type of tail light is that it can be too easily mistaken for a light on the ground and can't be seen for any appreciable distances during inclement weather.

Association Submits Its Recommendation to CAA

The Association submitted an air safety recommendation to the CAA on Nov. 16, 1939, together with a letter of transmittal explaining the problem and urging that a blinker type tail light be developed and tested with the view of later adding an amendment to the CAR making it mandatory that this type of rear warning light be installed on all air liners.

After this recommendation had reposed in a Washington pigeonhole for some time, Mr. Jerome Lederer, former Director of the CAB's Safety Bureau, became interested and started pushing the idea. Manufacturing companies were contacted and a blinker tail

(Continued on Page 7, Col. 3)

CONFIRM FAITH IN AMERICA

Excerpt from a letter dated October 12, 1942, from Lt. Col. Dick R. Petty:

"The Association can be proud of all its members who are in the Troop Carrier Command. The spirit and loyalty displayed by the boys through some difficult and trying conditions confirms one's faith in America. I am sure that the boys who are keeping the home fires burning won't forget what a readjustment these boys have had to make, and being justifiably proud of them will leave nothing undone to assure them all of a square deal when this scrap is over."

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David L. Behncke ..... Editor *Robert Schmidt ..... Asst. Editor*

CAB-CAA ERROR

On October 2 the Civil Aeronautics Board released an accident report concerning the probable cause of an accident that occurred to a Northwest Airlines plane on May 12, 1942, at Miles City, Mont., in the vicinity of Miles City Airport, which was piloted by superbly skillful line pilot Eugene S. Shank.

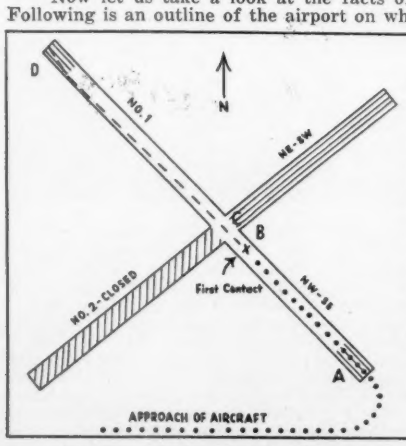
The veteran air line pilots' representatives in their eleven years of battling for justice for the men behind the controls can truthfully say they have never come in contact with a more unfair, incomplete, and evasive report of an air line accident. Surely this clumsy exhibition of cover-up contortion by the CAB to deflect blame from themselves and the Civil Aeronautics Administration generally is something for which no one could possibly be proud.

We don't know what such an investigation costs the taxpayers, but whatever the cost, it's a total loss. All the good that a report of this kind can possibly accomplish amounts to zero, and the harm that it does in downright disgust and loss of confidence in the CAB as air line accident investigators is inestimable. For example, it would cost nothing to say right at the outset, stripped of all else: "It's the pilot's fault." And that's just what this type of rubber-stamp accident report is worth and all it amounts to.

Due to the war, we have been engaged in a terrific airport-construction program amounting to not only building many new airports, but improving nearly every one of the fields constructed during past years which have since become inadequate for modern equipment. A large percentage of the country's airports currently under construction and enlargement are being used, and have been used, by the air line pilots. The pilots are using airports under construction—during the war—that they wouldn't normally use if it were not for their desire to go "all out" to help their country in its hour of greatest need by keeping its most important nationwide links of fast transportation and communication network open to every important industrial center. The Civil Aeronautics Board knows this. They are fully aware of it. They and their representatives know all about this angle—each and every part. A representative of the Air Line Pilots Association has said to the safety representatives of the Civil Aeronautics Board, "In the interest of the war effort we will pilot planes in and out of airports that are to a far greater degree under construction than we would during peacetime to further the war effort, but when something happens you had better remember that the pilots are bending over backwards in using these fields so that our country's air arteries of travel and communication may be kept intact to further the winning of the war."

The Board knows all this, and knows it well, and yet all that is forthcoming when something happens to the pilot in there pitching by landing on fields under construction is the same old worthless, run-down-at-the-heel rubber stamp, outmoded and antiquated—"It's the pilot's fault." If asked about an airport under almost complete construction, the CAB would, no doubt, tell you with much self-assurance, "We mentioned the fact that this airport was under construction and there was a pile of dirt here and a pile of rock there and they have lanterns on them, too, and so on, in our Weekly Notices to Airmen." This is their well-known emergency exit. However, the Board will say nothing about the necessity of using airports under construction and the attendant dangers so that Army, Navy, and Industrial Representatives and vital War Communications can be carried swiftly and unerringly to win the war. No, quite definitely not!

Now let us take a look at the facts of the Miles City situation. Following is an outline of the airport on which this accident occurred.



PILOT SHANK'S DILEMMA: He had to (1) clear obstruction point "A"; (2) miss windrows of Runway No. 2 at "C" through narrow, 200-ft. path at intersection, and (3) stop before he collided with construction material at "D."

COMMENT: Why did he carry plane up runway to point "B"? Obviously to safely pass through narrow intersection at "C." Normally, at least 500 ft. should be allowed on each side of an "in use" runway on a field under construction. Also remember that the "in use" part of Runway No. 1 was not surfaced; may have been factor in his not being able to stop. Why he gave it the gun is probably because of a fog- and rain-clouded windshield which obscured obstruction at "D" and destroyed his depth perception and judgment of distance. Best answer: "Why haven't air line pilots been furnished with precipitation-free windshields, for which they have been pleading for years?"

As shown in the airport diagram above, the plane was landing from the southeast on a runway that was under construction at both ends with windrows of material piled along such ends to the extent of from two to three hundred feet and in between these hazardous ends the balance of the runway was not properly surfaced, lacking the final seal coat—if you can imagine such conditions! If this startles you, take a look at No. 2 runway on the chart. It was completely closed, under construction and almost completely covered with windrows of construction material and other debris heaped upon it right up to the usable portion of the northwest-southeast runway at the intersection (see point C on diagram). If there ever was an airport which should have been closed, and closed completely, by the CAB and CAA it was the Miles City Airport on May 12, 1942, and it should have been kept closed until at least one end of the No. 1 runway was finished and the No. 2 runway was completed to within 500 feet on each side at the intersection. Had this been done, the accident would not have happened. However, it wasn't closed and the accident occurred and, no doubt, now the Board's investigators will sit back and coyly tell you that Pilot Shank should have gazed into his crystal ball and passed up this "in use" Miles City Airport with all the other pilots using it.

The responsibility of keeping an airport open or closed, based on the degree of construction in progress, is purely the responsibility of the Civil Aeronautics Board and the Civil Aeronautics Administration. In this case an airport was left open that should rightfully have been closed *and that is what the pilots point to as the real cause of the Miles City accident.* The "pilot error" phrase is merely the usual meaningless subterfuge for which the taxpayers are standing the cost. The CAB has indicted the dead pilots who can't fight back. The living pilots *can* fight back and they indict the CAB, whose Miles City accident report should, instead of blaming the pilot, rightfully read, "CAB-CAA error."

Again the answer is blazed across the pages of civil aviation air safety history already beclouded with years of struggle, fumbling, and covering up. Unless Congress re-establishes the Air Safety Board as a free agency of government to criticize the Civil Aeronautics Board, the Civil Aeronautics Administration, the carriers, and the pilots without fear or favor when an accident occurs, and to establish all of the causes in an accident report that is neither evasive, incomplete, nor unfair, and the degree that each of such causes contributed to an accident so they may be forthwith erased, we cannot hope to have a maximum degree of air safety. That is the answer and the only answer. The Civil Aeronautics Board, which formulates and approves the Civil Air Regulations, has no more business investigating itself than the pilots or air carriers have investigating themselves. It MUST be done by an independent agency; an Air Safety Board independent of the regulatory agency, the carriers, and the pilots. *Then—and only then—will we have a maximum degree of air safety.*

—*David L. Behncke*

HAM & EGGERS GREEN-EYED BY ESCAPADES

By J. D. McKEAN
Council No. 34, UAL
San Francisco, Calif.

Well, I finally missed a meeting and was duly elected to report on Council 34. "Hijacked" is the proper word. Curley Huking and Pinky Stainback put the pressure on, just as I figured it was time to hijack someone else to do the honors??? So here goes—

'Frisco has really been a busy place lately. All the greybeards—I mean senior men — have been learning to be pilots. Yeah! You should see 'em in school—can't help wondering how Huking, Walter Eefsen, George T. Douglas, and Grant Anderson would look in knee pants. Of course, it's a secret why they're in school, but they are learning to navigate—and 'tain't gonna be East!

Oldsters' Logbook Stories Make Youngsters Green-Eyed

The old ducks sure have us ham-and-eggers green-eyed with their escapades all over the country. The guy who said this was a young man's business never attended an ALPA meeting and listened to the "elite" hangar flying. Sure is tough on the "promoted copilots" left behind. What are we going to brag about? I have a couple of good stories all cooked up—now all I need is Will Kennedy's logbook to back me up.

Pinky has some time logged which should have been his last—or so he claims—flying through a pass up North on instruments. He admits there's no pass and is still befuddled how he did it. Creight Geer says he detoured a cloud for no good reason at 13,000 feet and found it was stuffed! D — —! I probably could have made a deal on his logbook. Well, guess that's enough for the upper-bracket boys.

Scribe (Newly Promoted) Can Now Walk to Plane Unassisted

With all this cooking, and the Army knowing where to find pilots, promotions have been necessary. Ted Hedden, Don McBain, Ray Moore, and—as I said before, promotions were *necessary*—I moved over in June. Nobody else will admit being jittery, but I can actually walk out for my trip unassisted, although they still send a nurse along and the dispatchers are wearing luck charms and low man signs my clearance. They gave me Bob Blanchard as copilot to keep me out of trouble, but Bob left me to work for CAA. All this just goes to prove why it pays to be a member in good standing—well, anyway, paid up!

Jack O'Brien and Walt Addems whistled up from San Diego in a

(Continued on Page 8, Col. 4)

Girl Radio Operator Scares Veteran Pilot

By ARTHUR "RED" FOSTER
Council No. 2, TWA
New York, N. Y.

Since being appointed scribe for the New York TWA gang, I've asked the boys to send me any items of news which might have occurred. So far the response has been a unanimous silence—nobody sent me anything! I hear that several of the N. Y. captains' wives have had babies recently. The Robert Willkes, the Frank Saylors, etc. No doubt the babies were either boys or girls. If I've overlooked any of you guys, just drop me a note and let me know.

Copilots Subject of Arguments

Several of the N. Y. copilots have been checked out recently: Russ Morris, Dave De Blasio, etc. That's what happens when a guy gets to be a good copilot. At a meeting the other day, someone suggested that the older copilots be scheduled with the newer captains. Someone else said we can't do that; all the older copilots are now checking out for captains. These men who are checking are being replaced by new copilots. Among the newcomers is Bob Jaekel, formerly of Hadley Field.

Another Woman Link Trainer Operator "Bobs" Up

It appears that the New York TWA gang hasn't been putting out enough news for some time. In a recent issue of the AIR LINE PILOT there was a picture of the only girl Link operator in the world. TWA has had a girl Link operator here in N. Y. for some time. *(Editor's Note:* Yes, and so does Pan American! Look on page 7.)

We also have some girl radio operators. It was quite a thrill to me the first time I heard one. We had just taken off from a short runway over some wires. When the copilot gave the time off and a girl's voice answered, I thought: "Yep, that's the telephone company sure as hell. We crossed those wires too low!"

"To fly West, my friend, is a flight we all must take for a final check."

In Constant Memoriam

Active Duty Air Corps

Beadles, Eugene C.—UAL; Darby, James E. — C&SAL; Jackson, Walter — TWA; Nelson, Franklin S. — WAL; Roscoe, Thomas M.—TWA.

Active Duty Naval Reserve

Williams, Roy W.—EAL.

Accidental ***Active***

Adams, John B.—U. A. L.
Anderson, Lloyd—U. A. L.
Andert, Paul A.—U. A. L.
Barrett, Joseph C., Jr.—P. A. A.
Barron, John M., Jr.—A. A.
Bickford, L. A.—Panagra
Bigelow, Ed.—U. A. L.
Blom, Edwin W.—U. A. L.
Bogen, W. L.—W. A. E.
Bohnet, Frederick L.—T. W. A.
Bolton, Harvey F.—T. W. A.
Bontrager, C. M.—R. A. L.
Borchers, Adrian—P. A. A.
Bowen, J. E.—T. W. A.
Bowen, Lewis L.—B. A.
Brandon, James L.—U. A. L.
Briggs, Francis W.—A. A.
Broughton, D. E.—U. A. L.
Brown, D. W.—U. A. L.
Brunk, Paul S.—P. A. A.
Bunker, Charles L.—P. A. A.
Chamberlain, Cassius B.—N. W.
Cohn, Hanley G.—W. A. S.
Cooper, D. I.—A. A.
Cope, Alonzo—Marine Airways
Cox, Floyd—Ludington
Dace, Frank E.—W. A. L.
Davis, Alfred W.—U. A. L.
Davis, Douglas—E. A. L.
DeCesare, Frank—Panagra
De Cesaro, Joseph G.—U. A. L.
Dietz, Stuart G.—E. A. L.
Dixon, Andrew, Jr.—D. A. L.
Dunn, Stephen—Panagra
Fey, Howard—U. A. L.
Fields, Glenn T.—A. A.
*Fisher, John F.—N. W.
Fortner, W. F.—E. A. L.
Fuller, Ray E.—A. A.
George, Hal—T. W. A.
Gillette, Morgan A.—T. W. A.
Gower, Vernon I.—D. A. L.
Grover, R. Boyd—U. A. L.
Haid, Arthur A.—N. W.
Hale, S. H.—E. A. L.
Haligren, W. A.—A. A.
Hill, George W.—A. A.
Holbrook, Clyde M.—A. A.
Holsbeck, W. M.—P. A. A.
Jamellier, Stanley E.—C. A. L.
Jamieson, W. L.—E. A. L.
Jones, Lloyd E.—U. A. L.
Kelsey, Harold J.—A. A.
Kincanon, Ted N.—A. A.
King, George B.—P. A. A.
Komdat, Albert C.—E. A. L.
Lewis, Harry C.—T. W. A.
Livermore, Joe—N. W.
Lucas, Al—W. A. S.
Lucas, Verne—Ludington
Lynn, John B.—C. & S. A. L.
McMickle, Harold—Panagra
Mallick, Forrest E.—U. A. L.
Mamer, Nick B.—N. W.
Marshall, Gerald V.—A. A.
Merrifield, Austin S.—U. A. L.
Martin, Karl R.—N. W. A.
*Miner, Willard H.—U. A. L.
Montee, Ralph—T. W. A.
Montijo, John G.—V. A. T.
Morgan, Howard R.—T. W. A.
Mossman, Russell C.—C. & S. A. L.
Neff, Harold—U. A. L.
Noe, Earl J.—T. W. A.
Norby, Raymond B.—N. W.
Odell, M. T.—A. A.
*Olson, Kenneth S.—N. W.
*Onsgard, Aiden—N. W. A.
Owens, Clifford W.—A. E.
Paschal, A.—P. A. A.
Pedley, Charles F.—A. A.
Perry, J. A.—E. A. L.
Person, Addison G.—P. A. A.
Pleiemeier, Harold E.—A. A.
Potter, Norman W.—U. A. L.
Pursley, C. H.—Panagra
Radoll, R. W.—U. A. L.
Riggs, Russell S.—A. A.
Robbins, Wm. J. B.—A. A.
Rose, John A.—N. L. M.
Rousch, Chas. W.—N. W.
Rust, F. H.—A. A.
Salisbury, Hervey M.—T. W. A.
Sandblom, J. V.—C. P.
Sandegren, Thomas E.—U. A. L.
Saucedo, J. M.—P. A. A.
Scott, P. T. W.—T. W. A.
Scott, Philip C.—U. A. L.
Scroggins, Lowell V.—P. C. A.
Shank, Eugene S.—N. W. A.
Sharpnack, J. W.—U. A. L.
Sheetes, Don K.—Panagra
Sherwood, George C.—W. A. E.
Suppie, Robert E.—Panagra
Tarrant, Harold R.—U. A. L.
Terletzky, Leo—P. A. A.
*Thomas, L. E.—E. A. L.
Thompson, A. R.—U. A. L.
Underwood, Sanford L.—A. A.
Vance, Claire K.—U. A. L.
Waldron, Joe—A. A.
Walker, M. A.—P. A. A.
Wallace, Clyde W.—T. W. A.
Weatherdon, Edwin—A. A.
West, F. W.—N. W.
Wieselmayer, Otto—P. A. A.
Williams, Wayne C.—T. W. A.
Williamson, P. B.—E. A. L.
Worthen, John A.—W. W.
*Wright, J. S.—T. W. A.
Young, George S.—U. A. L.
Zeier, Carl F.—C. & S. A. L.

Natural

Blomgren, Lloyd I.—AA; Cochrane, Robert M.—UAL; Currier, C. L.—TWA; Fife, John A.—CA; *Gambee, Harley T. —TWA; Hohag, R. J.—NW; Jamieson, Leland S.—EAL; Maguire, Richard C.—AA; McConaughey, Ira M.—AA; Phelps, Henry T.—PAA; Swanson, Axel—AA.

Inactive

Anderline, Frank W.; Ashford, Ted; Barr, Julius; Burford, Dean W.; Caldwell, G. G.; Drayton, Chas. M.; Fisher, Alfred O. F.; Huisman, Herbert W.; Hunter, Lewis W.; Jackson, L. A.; Judy, H. R.; Kerwin, J. J.; Noyes, Dewey L.; Ormsbee, F.; Riddle, Glenn L.; Roulstone, J. J.; Rousch, Ushor E.; Shelton, Boyd M.; Stark, Howard C.; Veblen, E. H.; Walbridge, Donald C.; Warner, Roy; Wheaton, Harold H.; Whittemore, Fred W.; Wolf, John F.; Willey, Sidney L.

Waiting List

Brock, Wm. S.; Kiser, Daniel; Langmack, David F.

Unemployed

Downs, Lloyd; Hays, George L.; Keadle, Floyd E.; Miner, R. I.; Rhiner, L. H.

Honorary

Greene, Dr. Ralph; Rogers, Will.

** Apprentice Member.*

—Long Island Star-Journal Photo

GLOBULAR GLAMOUR PIONEERING ANOTHER TRAIL FOR WOMEN IN AVIATION ARE THESE FOUR AMERICAN EXPORT AIRLINES' STEWARDESSES, WHO RECENTLY BECAME THE FIRST WOMEN TO FLY THE ATLANTIC ON REGULARLY SCHEDULED TRIPS. ASSIGNED TO DUTY ABOARD THE "FLYING ACES" ARE (L. TO R.) MARGARET SIEGFRIED, KATHRYN FRIEDRICH, GENEVIEVE ST. MARY, AND ADELE JENKINS. WE VENTURE TO PREDICT THAT WHEN SOME HARDY MALE MAKES THE FIRST FLIGHT TO THE MOON, IT WON'T BE LONG BEFORE SOME OF THE "WEAKER" SEX GET THERE, TOO—IF NOT FIRST!

Correspondent Makes News; Says Everyone Else Is a "Buttonmouth"

By CHICK ANDREWS
Council No. 6, AA
Boston, Mass.

Vacation time has returned to Boston. Although it seemed that all vacations would have to be set aside for the duration, our champion juggler of schedules, Rosie Ellis, has been at work again and devised ways and means of getting time off for the boys. George Govoni had about two weeks off and Gordon Staples had a one-week leave.

What a Guy With a "C" Book Won't Do

Needless to say, these boys have come back full of vim and vinegar, mostly the latter! Gordon fiddled around with his boat some, I understand, and George built a stone wall along one side of his new house and completed other menial odd jobs in preparation for the winter weather. He has even threatened to return some gasoline coupons to the ration board for the time not used for trips to the field during the period. What a guy with a "C" book won't do!

Just a Chip Off the Govoni Block

George has a young son who is just like his old man. A little incident that happened some time ago might be of interest. Mrs. Govoni stepped outside the kitchen door one morning and, unfortunately, the door blew closed. The latch was down, as were those on all the other doors. Mrs. Govoni, unable to open the door, rapped on the window to attract the attention of the little fellow inside. He seemed to have other thoughts in mind, thoughts reminiscent of Comedian Red Skelton's "mean wittle kid."

Instead of opening the kitchen door to let her in, Mrs. Govoni saw the little rascal give this amazing performance: First, he opened the refrigerator door. Next, he took out a dozen eggs. The clinax came when he proceeded to drop them, one at a time, on the floor! I have not heard just how Mrs. Govoni gained entrance to her home, nor what happened to the little tot, but I feel quite certain that a recurrence of this episode is most unlikely. *(Editor's Note: Could it not be that the young Govoni was merely getting in some early practice for dropping "eggs" over Naziland?)*

"Cardboard" Suit Causes Great Gloom in Heart of Scribe

Your humble scribbler "busted" out in a new fall outfit last month and enjoyed showing it off to everybody. He even tried to catch the eye of the chief pilot. The big let down came when Capt. Roys A. Ellis, Jr., scrutinized the outfit and gloomily stated that the material contained so much cardboard that if once caught out in the rain the results would be tragic. I try to see the bright side myself and say, "What can you wear in the rain, other than a raincoat or a bathing suit, that will look all right?" It is *most* depressing.

Art Robertson put in his usual bid on Fort Worth. He is like the modern-day hitchhiker who says conditions are so bad along our highways that when he thumbs a ride he will go either way. Robbie would just as soon fly from FV to NA or FV to EO. The day after he put in his bid, he ordered four tons of coal and expects he may have to tear out his oil burner. Way down deep in his heart he expects to be shoveling snow this winter!

Have to Make Own News; Everyone's a "Buttonmouth"

We have had several of our ex-Boston pilots go through the mill at Smyrna on four-motored equipment, namely: Chuck O'Connor, Jim Hay, and Al Anderson. The writer has not heard much regarding this operation, which still seems to be a big secret even among those who should know. Al Maisch was in New York several weeks ago, but offered no information regarding anything. Everyone is getting to be such a buttonmouth these days that one practically has to get out and make his own news. Then he doesn't dare print it!

We did hear that Charlie Jeter flew a P-38 from somewhere to somewhere . . . that Doug MacOdrum is the chief cook and bottlewasher on a DC-4 somewhere . . . that Art Tappan is instructing somewhere . . . that Johnny Bordeno is flying in the Far East . . . that Gordon Staples rented Bill Cheney's house to a Navy lieutenant . . . that Bob Carroll moved his family and his furniture to New York . . . that Johnny Hart wants to get back to Boston . . . that Red Allen is now a first lieutenant . . . and that we'll all be glad when the war is over!

SCRIBE WINCHELL-ED!

By way of our extensive grapevine network, the editors of the AIR LINE PILOT are occasionally able to "scoop" their own correspondents. Concerning the activities of one of our scribes, this item has just trickled in from George J. Wells:

"Our copilot, Don B. McNamee, was elected scribe just recently for Council No. 44, Delta. Even though he seems to be hard up for material, he is withholding certain pertinent news. The fact that Delta is having a hard time keeping good stewardesses means nothing to him, for he is marrying one of them the first of the month. This little lady, Miss Sarah Thompson, hails from Highpoint, N. C., and has been with us a couple of months. (Looks like he would wait until she had worked long enough to pay for her uniform, doesn't it?)"

Signed: Super Sleuth CQ.

Always Laugh at His Corny Jokes

By KEITH MURRAY
Council No. 28, Colonial
New York, N. Y.

Our personnel list is changing so rapidly that space will not permit my giving all the names, but here are the new captains: John Ringer, Michael Gitt, Carl Rach, Charles Wenzel, Lou Orton, Bruce S. Macklin, and Jimmy Town. They can be distinguished from the first officers by their stripes and by the way their noses twitch when night time is mentioned. Herb Clark is chief pilot now, with Roe Nemmers as his assistant.

I saw Capt. Fred Johnson the other day, and he looked fat and happy. Haven't seen Hewitt Mitchell or Roy Ralston for some time, but Dame Rumor hath it that "Mitch" is wishing he had never studied dispatching, and that Roy has a hangover from a shot in the arm. All I know about "Ran" Churchill is that he is around somewhere, but I think it would be a hard job to pinpoint him.

"Am I Here, or There—or Just Where Am I . . . ?

Not much air line gossip this month, but one incident occurred which is worth relating. Capt. Eb MacKay was in range at Albany; the weather was good, and he had an old copilot with him; left main, full rich, props were synchronized perfectly; wind was light; Eb didn't have a worry in the world and felt that life was full and good. The in range report was given and Eb settled back to receive his landing instructions.

He received them all right, but the punch line went like this: "One Messerschmitt taking off north." Restraining an impulse to flip the old girl over on her back and hit the silk (he reads a lot), he picked up the mike and asked Albany for the story, which revealed that the German ship was being used in a recruiting campaign.

* * *

Forgive me for the following poem dashed off in one of my more inspired moments:

THE COPILOT

I am the copilot, I sit on the right,
It's up to me to be quick and bright;
I never talk back for I have regrets,
But I have to remember what the Captain forgets.

I make out the Flight Plan and study the weather,
Pull up the gear, stand by to feather;
Make out the mail forms and do the reporting,
And fly the old crate while the Captain is courting.

I take the readings, adjust the power,
Put on the heaters when we're in a shower;
Tell him where we are on the darkest night,
And do all the bookwork without any light.

I call for my Captain and buy him cokes;
I always laugh at his corny jokes,
And once in awhile when his landings are rusty,
I always come through with, "By gosh it's gusty!"

All in all I'm a general stooge,
As I sit on the right of the man I call "Scrooge";
I guess you think that is past understanding,
But maybe some day he will give me a landing.

* * *

The following was obtained from my column-filler-upper file, and is intended only as such:

CAPTAINS I HAVE KNOWN

The Tightwad—Won't use landing lights to say hello to other ships; uses navigation lights only.

The one who won't let the copilot smoke a pipe—secretly trying to learn how at home.

The one who always nods about 2 o'clock.

The ones who, when back in the cabin, always rush back up just in time to make the landing.

The one who likes to talk on the radio.

The one who is always leaving something in the cockpit.

The one who comes back on the radio with great emphasis: "Reception very poor," and then goes on with a long and involved clearance without a mistake.

ATMOSPHERIC TURBULENCE

The subject of atmospheric turbulence has long been one of interest to the air line pilots and aeronautical engineers. Turbulence is associated directly with engineering stress analysis, piloting, and passenger comfort, which brings it within the scope of almost universal interest in air transportation. At the suggestion of the Air Line Pilots Association, Mr. L. P. Harrison, a leading meteorologist of the U. S. Weather Bureau, has prepared an interesting and very informative article on the subject of atmospheric turbulence, which will appear in the AIR LINE PILOT in serial form. The tenth installment follows:

From the foregoing (fact that turbulence emanating from the surface may produce clouds), it is apparent that turbulence will be experienced beneath and within stratus clouds produced in the manner outlined above. The rough air will extend, as a rule, to the base of the inversion or a short height above, where convection or turbulence from below is brought to a halt owing to the stabilizing influence of the thermal stratification (i.e., warmer air overlying cold).

Recapitulating, it is apparent that

(a) the more rugged the topography,
(b) the greater the wind speed,
(c) the greater the amount by which the lapse rate below the cloud exceeds the dry adiabatic value, and
(d) the greater the depth of the unstable layer, then (1) the greater will be the rate at which the kinetic energy of the wind and the potential energy of the unstable atmospheric layer are converted into energy of turbulent motions, and (2) the stronger will be the velocities of up-and-down currents in the stratum affected. Consequently, especially pronounced bumpiness and convection currents are often associated with stratus clouds that develop over rough sea and land surfaces. Evidence of turbulence beneath and within stratus clouds is yielded when contrasts exist in the cloud base between dark appearing portions where the cloud is thick and lighter portions where it is thinner and allows more illumination from sun and sky to pass through.

(B) Unstable Lapse Rate Within Clouds

The existence within clouds of a lapse rate that exceeds the lapse rate of saturated air undergoing expansion adiabatically during ascent through the atmosphere is indicative of an unstable condition for the saturated air, as explained in Section 5. At times this condition prevails in stratus clouds, but not as a rule. (Growing cumuliform clouds invariably have an unstable lapse rate for saturated air.)

Very often, unstable lapse rates for saturated air are found in low stratus clouds formed by mechanical turbulence near the surface accompanied by thermal convection. Sometimes the unstable lapse rate does not extend through the entire depth of the stratus cloud but occurs in a few thin strata interspersed with strata characterized by stable lapse rates for saturated air.

Thermal convection currents develop within the layer or layers of unstable lapse rate for saturated air. These are similar to thermal convection currents in unsaturated (dry) air, except that liquid cloud droplets, or ice crystals are carried in suspension.

Bumpiness Over Oceans and Coastal Areas Common

Considerable bumpiness may result from such saturated, thermal convection currents. Inasmuch as some of the energy for these currents comes from latent heat of condensation, they tend to become especially strong when the source is bountiful. This is particularly true when there is rapid transport of water vapor by vigorous convection and turbulence from a moist surface to the cloud base. Two localities satisfying this condition are oceans whose surfaces are whipped up into high waves by strong winds, and coastal areas whose winds are prevailingly from the sea. In regard to the latter situation, it is worthy of note that when the waters off the coast are relatively cold and the land is warm, the maritime air mass crossing the coast quickly becomes unstable near the surface by conduction of heat from the ground. This is assisted by increase in mechanical turbulence attending passage of the air from the comparatively smooth sea to the rougher land. For these reasons, the stratus clouds that form in the manner outlined exhibit marked turbulence.

It's a "Final" Examination . . .

For the Student Who Fails To Learn His Lessons!

The fellow pictured here doesn't have to sit in a stuffy classroom and try to figure out answers to brain-twisting questions under the searching stare of Prof. Everything Perfect. Instead, "His final exam is just a mere breeze; as he falls through the air with the greatest of ease." Unless, of course, he flunks and goes "BOOM!" Shown at right is a graduate of the Parachute Rigging School, Naval Air Station, at Corpus Christi, Tex., just after leaping from the hatch of a huge Navy transport plane to test a 'chute which he has packed himself. If it opens, he passes the course; if it doesn't, well, he's still taken his "final" exam.

—Press Association Photo

Air Line Network of Migratory Birds

Foreword: A number of months ago, First Pilot W. H. Proctor, now a major on active duty for the duration, remarked: "You know, this business of hitting birds while on routine flights is really a serious matter. I doubt whether they will ever be able to construct windshields strong enough to resist the terrific impact of a bird as heavy as a duck, goose, or swan, especially with air line planes rapidly moving toward the 300-mile-an-hour category. Maybe if the air line pilots could learn something of the migratory habits of the birds — what routes they follow, the altitudes at which they fly, and so on—they could guide their planes at altitudes and along detours to avoid bird air traffic and thereby lessen the migratory bird collision hazard."

F. C. Lincoln

ALPA Headquarters agreed that the Major had something in this line of reasoning, and that possibly the Fish and Wildlife Service Division of the U. S. Department of the Interior in Washington would have some valuable information on this subject. Chicago to Washington was Major Proctor's regular run and he spent considerable time visiting the Department of Interior's Fish and Wildlife Research Division. He became quite well acquainted with Mr. Frederick C. Lincoln, Biologist in Charge, Distribution and Migration of Birds. After a number of conferences, Mr. Lincoln, in an effort to be helpful, graciously consented to write an article on the subject of "Air Line Network of Migratory Birds" and other flight habits. This extremely interesting and unusual article, which is the first of its kind ever to be written, is published in the following columns of the AIR LINE PILOT:

A major problem confronting aeronautical engineers arises from a natural phenomenon — the migration of birds. As man has steadily extended his travel in the natural element of the birds, his planes have suffered an increased number of serious accidents from collisions with the birds. More than sixty such accidents, according to the Civil Aeronautics Administration, have occurred since 1939, most of them at night.

How to reduce or to eliminate this hazard to air travel is receiving attention from airplane designers, with a view possibly to developing a windshield that will be resistant to a heavy blow, or devising some modification in the shape of the ship's nose that may produce a slip stream powerful enough to deflect a bird before impact. There is every reason to believe that ultimately some such solution will be found, but for the present, the best insurance against accidents of this kind would seem to be avoidance of the danger. It is expedient, therefore, to examine the ornithological aspects of the problem, for a knowledge of some of the facts regarding bird migration will be of assistance in reducing the number of catastrophes in which both men and birds are victims.

Among the factors to be considered are (1) the identity of the birds; (2) the period or season of greatest hazard and of greatest abundance of species involved; (3) the altitude at which migrants are most likely to be encountered; and (4) the main lines of avian flight, commonly known as migration routes. While it might seem that speed of flight also should be considered, it may be pointed out that few birds migrate in excess of 60 miles an hour, a rate below the stalling speed for all but the slowest and lightest planes.

Identity of Birds

The evidence now available indicates that most bird-airplane accidents are caused by different kinds of water birds, usually ducks, geese, swans, or coots (mudhens). Collisions with gulls, vultures, eagles, hawks, snipe, and other shorebirds and even with some of the small song birds have been reported, but even though accurate identification was made in these cases, it must be conceded that accidents involving these species could be considered only as unusual. In some instances they would indicate a lack of ordinary daytime attention on the part of the pilot, chiefly for the reason that most of these birds (particularly gulls, hawks, eagles, and vultures) do not normally engage in nocturnal flight. On the other hand, ducks, geese, and swans migrate both day and night and their most extensive mass movements usually begin at or shortly before dusk. Some other heavy water birds, as loons and grebes, are almost exclusively night migrants.

Seasonal Hazards

Bird migration is a semiannual phenomenon, a spring phase, northward to the breeding grounds; and a fall phase, southward to winter quarters. These, therefore, are the seasons of greatest hazard to planes. That the danger at such times is very real will be better understood when it is remembered that as a result of the most recent (1942) Fish and Wildlife Service inventory of North American game ducks and geese, the continental population was estimated to be slightly in excess of 100,000,000. These winged hosts, which are still below optimal numbers, are pushing steadily northward during the period from early in February to the last of April or the first of May, depending somewhat on the rapidity of the advance of spring. Again, early in September flocks from the northern breeding grounds are working southward, and it may be the last of December before the flight ends and all the birds are settled in winter quarters.

November Is "Busiest" Month

This does not mean that in any one region the hazard to planes from migrating waterfowl is of high intensity for a total period of 7 or 8 months of each year. Normally, most of the migrating birds pass through any particular region in a period of about one month. Table 1 is an attempt to indicate these months in the vicinity of important cities. The word "normally" must be emphasized, for the reason that unusual climatic conditions sometimes accelerate or retard the movement. A study of this table will show that in spring the month of greatest waterfowl activity is March, with February (in the south) a close second. November is easily the fall month when most of the flocks are on the wing.

It is important to note the points in the table that are starred. These are in the region occupied by ducks and geese in winter when the waterfowl are more closely concentrated than at any other time of year. During this period, and despite the fact that little or no migration is in progress, there is considerable "trading" back and forth between feeding and resting grounds, usually by rather low-level flights. Sometimes the distance from one to the other will be 25 miles or more, although usually it is much less.

TABLE 1. — Month of waterfowl-migration intensity in the vicinity of important cities in the United States.

City	Spring	Fall	City	Spring	Fall
Albuquerque, N. M...	Mar.	Nov.	*Miami, Fla.....	Feb.	Dec.
*Baltimore, Md.....	Mar.	Dec.	Minneapolis, Minn....	Apr.	Oct.
Bismarck, N. D.....	Apr.	Oct.	*New Orleans, La.....	Feb.	Dec.
Boston, Mass.....	Mar.	Nov.	New York, N. Y.....	Mar.	Nov.
*Brownsville, Tex.....	Feb.	Dec.	Oklahoma City, Okla..	Mar.	Nov.
Butte, Mont.....	Mar.	Oct.	Omaha, Nebr.....	Apr.	Nov.
Casper, Wyo.....	Apr.	Oct.	*Philadelphia, Pa.....	Mar.	Nov.
*Charleston, S. C.....	Feb.	Dec.	Pittsburgh, Pa.....	Apr.	Nov.
Cincinnati, Ohio.....	Mar.	Oct.	Portland, Me.....	Mar.	Oct.
Cleveland, Ohio.....	Apr.	Oct.	*Portland, Ore.....	Mar.	Oct.
Denver, Colo.....	Mar.	Nov.	*Raleigh, N. C.....	Feb.	Dec.
Detroit, Mich.....	Apr.	Oct.	Salt Lake City, Utah.	Mar.	Nov.
*Fort Worth, Tex.....	Feb.	Dec.	*San Francisco, Cal....	Feb.	Nov.
Indianapolis, Ind.....	Mar.	Nov.	*Savannah, Ga.....	Feb.	Dec.
*Kansas City, Kan.....	Mar.	Nov.	*Seattle, Wash.....	Mar.	Nov.
*Los Angeles, Cal.....	Feb.	Nov.	Springfield, Ill.....	Mar.	Nov.
*Memphis, Tenn.....	Mar.	Dec.	*St. Louis, Mo.....	Mar.	Nov.

* Starred points are in the normal wintering regions, and flocks may be encountered there at any time from November to March, inclusive.

Altitude of Flight

Altitude of migratory flight has received much attention from ornithologists, and as a result reliable data are being steadily acquired. Some of the earlier observers held the idea that flying becomes easier as higher altitudes are attained, and they believed that normal migration takes place at heights above 15,000 feet. It is true that some birds that have relatively light bodies in comparison with the great supporting surfaces of their wings, as herons, cranes, man-o-war birds, and vultures, do have a distinct advantage in high-altitude flying. They are so skillful in soaring as to make it appear that their ascent to high altitudes is sometimes merely "for the fun of it." Sailplane pilots riding the thermals at altitudes of 4,000 or 5,000 feet have reported meeting such birds doing the same thing. Certainly the birds were not on migration and, as they could not be looking for food, there is every reason to believe that these feathered flyers were merely enjoying their mastery of an art that their observers were striving to attain in machines of fabric, wood, and metal.

At one time it was also thought that high-altitude flight is necessary for locating landmarks. Orientation during migration is a phase of the subject that is not yet fully understood, but while it is known that birds in general do possess wonderful vision, there is no reason to believe that this is their sole means of guidance. Illustrative of this is the fact that if the migrants that cross the Gulf of Mexico were to fly at a height of 5 miles on their journeys from Florida and Louisiana southward to Yucatan and the Isthmus of Tehuantepec, they still would be unable, even from that elevation, to see one third of the way across.

Observations made at lighthouses and other points of vantage indicate that many if not most birds commonly perform their migratory flights at altitudes that vary from a few feet to a few hundred. For the last 25 years broad expanses of air have been under close surveillance by airplane pilots and observers and among those are many who have taken more than a casual interest in birds. During World War I several thousand bird-flight records were obtained, of which only 36 were above 5,000 feet and of these only 7 were above 8,500 feet.

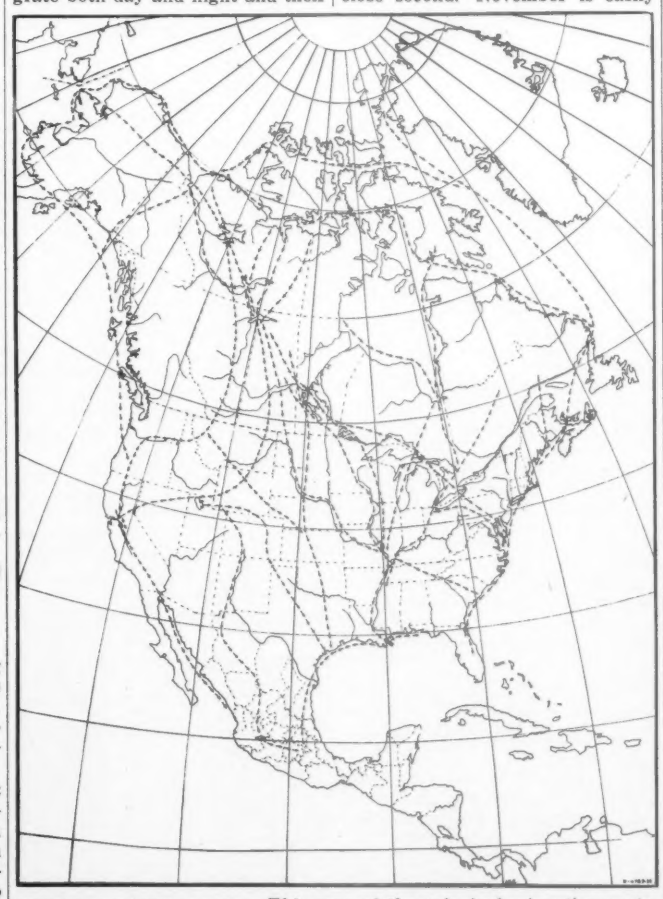
As here used, altitude refers solely to height of flight above the earth's surface, for it will be obvious that birds whose migration routes take them across mountain ranges must perforce attain altitudes that are much higher than the same readings above sea level. When from necessity migrant birds have ascended to great heights (they have been observed passing over points in the Himalayas 14,000 feet above sea level), there is evidence that they usually descend to lower levels as soon as the topography of the country permits. They have been actually observed to fly over mountain ranges lying across their paths and immediately to descend to their normal traveling altitude.

On the basis of existing evidence it appears that the stratum of air between 100 feet and 3,000 feet above the surface of the earth is that used by the great majority of migratory birds. Aircraft that travel above that zone therefore, should be normally in little danger of collision with birds.

Migration Routes

Study of bird-migration routes over any major land mass is the task of a lifetime. Some routes are simple and easily traced; others are highly complicated. Were it possible during the height of migration to make observations of North American birds from the stratosphere, there would seem to be great confusion in the flight lanes. Some would appear to be intricately interlaced, even crossing others at right angles. The confusion, however, would be more apparent than real, since there is abundant evidence of the extreme orderliness of the travels of the individuals of any particular species. The concept of the flyway system is, in fact, predicated upon the remarkable adherence of individual birds to their breeding grounds, to their winter quarters, and to a certain definite route of travel between these two places.

From the viewpoint of airplane pilots, it is of the utmost importance that a bird-migration route be recognized for what it is.



BIRD FLYWAYS *This map of the principal migration routes of North American ducks and geese. might lead to the conclusion that the airways of birds are narrow paths of high concentration, separated by vast areas of avian desert. Actually, it is doubtful whether there are many sections of any important route less than 50 to 100 miles wide. Exceptions might be noted in places along the coasts and in certain narrow river valleys. Nevertheless, to avoid dangers of collision, airplane pilots will be well-guided by the concept that during the migration season in any particular latitude, heavy birds are likely to be encountered below 3,000 feet elevation, and that in certain areas the danger will be much greater. Among these last will be the coastal marshes, the shores and connecting rivers of the Great Lakes, the Mississippi and Missouri Valleys, the lake regions of Minnesota, Wisconsin, the Dakotas, and Nebraska, the Flathead and Centennial Valleys of Montana, the great marshes north and east of Great Salt Lake, and the interior valleys of California. During the seasons of bird migration, therefore, pilots flying over or along such lakes, valleys, or coastal marshes, should endeavor to hold their planes well above 3,000 feet and to exercise caution in landings and take-offs.*

Lauds Line Pilots Who Fly in Combat Zones

Hans Van Der Borg, writing under the title of "The Air Lines Carry On" in the Vol. 1, No. 1 issue of aviation's newest magazine, *Skyways*, includes this pertinent paragraph:

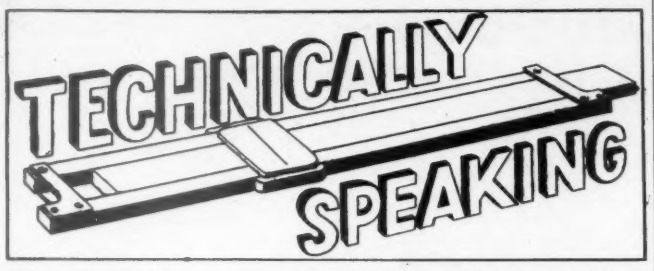
"Each air line is as much a part of the United Nations' military organization as any military division can be. Pilots with a civilian status are flying planes into combat zones operating shoulder to shoulder with the military fliers. Ground organizations, now scattered to the far corners of the world, are giving one hundred per cent of their time to expediting military shipments by air. Military planes are being converted by civilian air line mechanics at civilian air line bases. Air line technicians — meteorologists, navigators, pilots, etc. — are training the military. At airports throughout the country, a casual observer can distinguish a military air transport officer from a civilian air line employee only by the former's khaki uniform."

CAB Asked to Halt Activities of Universal Air Freight Corporation

CAB Examiners J. Francis Reilly and Ralph L. Wiser recently recommended that the Civil Aeronautics Board order Universal Air Freight Corporation to cease operating as an air carrier without a certificate from the Board.

The investigation, which has a great bearing on future air cargo operation by American flag companies, was ordered by the CAB last March to determine whether or not Universal Air Freight is an air carrier as defined under Sec. 401 of the Civil Aeronautics Act of 1938. Most domestic air lines intervened in the proceedings.

Universal, a subsidiary of United States Freight Corporation, which is the largest freight forwarder in the country and which has thousands of motor trucks and extensive ground equipment facilities, began operating last summer between major U. S. cities, picking up shipments and consolidating them before consignment to Express Agency, which has an exclusive contract with the air lines. They offered cheaper rates than those of the air express division of Railway Express Agency, Inc., operating at a loss even to themselves.



Practical Aeronautical Celestial Navigation

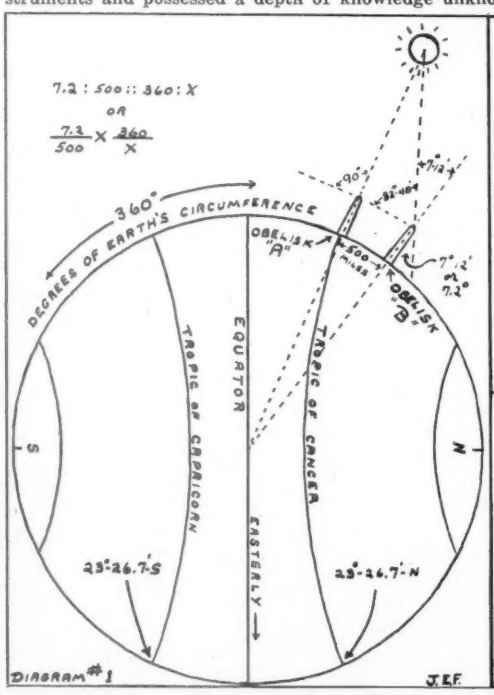
By CAPT. JAMES E. FARRIS

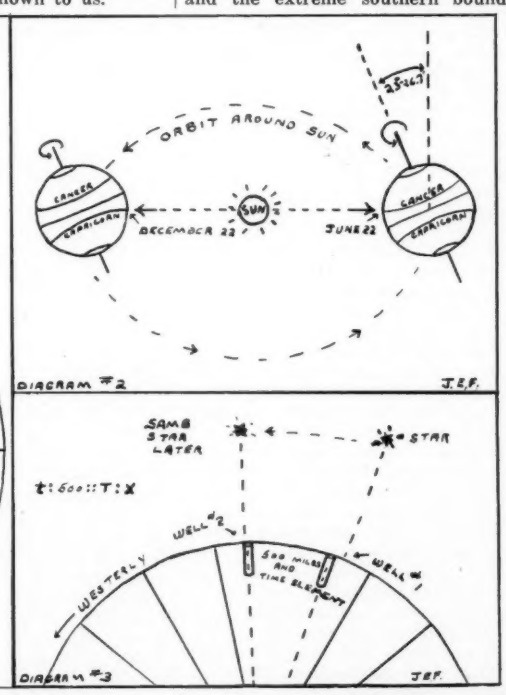
This is the second in a series of navigation articles written especially for the AIR LINE PILOT by Skipper James E. Farris of American Export Airlines. Pilot Farris is exceptionally well qualified to write on this subject and, in addition to being a Licensed Marine Navigator, has had much experience in practical navigation problems as related to air pilots. He is a frequent contributor to the AIR LINE PILOT, having been the author of the "Winged Couriers of Good Will" series which described his travels through South America as pilot of the Inter-American Escadrille. Each of the succeeding installments is designed to be complete in itself, but relates to the main subject—Celestial Navigation.

* * *

Continuing our study of navigation in retrospect before launching into its modern counterpart, you will remember that in our last article we covered the methods by which the Polynesians navigated their war canoes throughout the Pacific Ocean by the stars, using a coconut with holes punched in it as an angle-measuring device or sextant, and in summarization decided that it was comparatively simple and not at all difficult to understand.

However, halfway around the world another race of people, the Egyptians, had already, with means and methods just as simple, arrived at the fact that our world was round, and further, with the simplest of means, computed it within a remarkable degree of accuracy. Aside from being historically accredited as the world's first geometricians, trigonometricians, and surveyors, they were known to be advanced astronomers and calendar makers. Considering that the Egyptians actually computed the distance around the world, not only in a north and south direction but also in an east and west direction, one might easily at first suppose that they had access to intricate instruments and possessed a depth of knowledge unknown to us.





Egyptians Used Pyramids as Triangulation Points

Their knowledge of surveying was unusually complete, and pyramids in the Nile region, the purpose of which was once largely a matter of conjecture, are now known to have been triangulation points used by early Egyptian surveyors to re-establish boundaries after the annual floods of the Nile. As in Egypt of old, there exist today similar triangulation points throughout the civilized world, which are merely definite points of latitude and longitude very accurately fixed and marked in some manner or other, usually by pylons rather than pyramids, from which surveyors take off to boundary different properties. The necessity for the pyramidical triangulation points of Egypt is not at all difficult to realize if you consider the method of agricultural irrigation peculiar to that country. Yearly the river rises and floods inland for hundreds of miles and is dammed in places and used for irrigation purposes. Naturally any man-made boundaries would become effaced in a comparatively short length of time. Hence the necessity for definite triangulation points to re-establish these boundaries.

Other pyramids were used by the Egyptians as tombs and still others in their work on astronomy. After planetariums had been built and their motions reversed to the era of the Egyptians, it was noted that certain pyramids lined up with different stars which corresponded with other records in such a manner as to have been impossible of coincidence. Exactly how they were built, however, remains unsolved.

As mentioned previously, the Egyptians have been accredited with the invention of geometry. Geometry is a derivation of two Greek words, "geo" meaning land and "metry" meaning measurement thereof, and originally meant land measurement only. However, in its present extension, geometry is the foundation of mathematics. Trigonometry is a branch of geometry and means triangle measurement and is the foundational mathematics for present-day navigation. But, as stated before, this definitely presents no obstacle, principally because the bulk of all navigational math is pre-computed.

Explains How Obelisks Were Used

There still stand today the remains of two obelisks together with records to show how they were used. The attendant diagram No. 1 (which is not drawn to scale), shows one of these Egyptian obelisks standing on the Tropic of Cancer and another one standing 500 miles due north of it. Most of us know that the imaginary line known as the Tropic of Cancer marks the extreme northerly limit of the sun's apparent travel as the seasons gradually change; whereas the Tropic of Capricorn marks the extreme southerly limit. Each of these lines encircles the globe at a latitude of 23 degrees 26.7 minutes on either side of the equator. This 23 degrees 26.7 minutes is the amount of inclination of the earth's polar axis to the plane of its orbit. Why this actual inclination is evident is revealed to us by certain physical laws and will be discussed in a subsequent article.

If there were no inclination of the earth's polar axis, or, in other words, if the earth's polar axis were exactly perpendicular to the plane of its orbital motion, the sun would remain forever exactly over the equator, and an imaginary plumb bob dropped from the center of the sun to the earth's surface would cut the earth exactly at its equator year in and year out throughout eternity, and we would have no seasons. However, the earth's polar axis has been tipped outward from this imaginary perpendicular state to a total angle of 23° 26.7′. Obviously this would allow our imaginary plumb bob hanging from the sun to shift above or below the equator a corresponding amount, namely 23° 26.7′ also. Whether it was north or south of the equator would depend in what part of its orbit the earth was, and it would gradually change from one side to the other (north or south) in a period of six months, as graphically shown in Diagram No. 2 (not drawn to scale), and would make a complete change or cycle from one side to the other and back again as the earth gradually encircled the sun in its year of 365 days and 6 hours. (The six hours are dropped each year until in four years their total aggregate equals one day, at which time it is added to the month of February and then written off as a leap year.)

Hipparchus, Greek Astronomer, Named Tropics of Cancer, Capricorn

As heretofore stated, the extreme northern boundary of this apparent motion is marked by an imaginary line, the Tropic of Cancer, and the extreme southern boundary is marked by an imaginary line, the Tropic of Capricorn. These imaginary lines are in latitudes 23° 26.7′ north and 23° 26.7′ south, respectively. They were named over 2000 years ago by the Greek astronomer, Hipparchus, and the reason for their respective names is as follows: At the instant that the sun was in its northern solstice, or what is the same thing, the furthest limit of its travel to the northward, which was 23° 26.7′ north, if Hipparchus, standing immediately under the sun in latitude 23° 26.7′ north, could have looked up past the sun into the heavens at the stars actually there, although blotted out by the sun's light, the sun would have been observed against a background of the constellation of stars known as Cancer. Whereas when the sun was in its southern solstice, or what is the same thing, its extreme limit of travel to the southward, or vertically over 23° 26.7′ south latitude, and Hipparchus stood immediately under the sun and looked up past the sun, if he could have seen the stars that were blotted out by the sun's light, the sun would have been observed against the background of the constellation known as Capricorn. Naturally Hipparchus couldn't see them, but he could, of course, deduce what constellations the sun was in at these solstitial points, so he named the lines accordingly. All this was over 2000 years ago, and if Hipparchus should stand under the solstitial points of the sun today, he would see, due to the precession of the equinoxes (which will be discussed later), that the sun had moved out and away to the westward from these constellations. The northern solstitial point, instead of being in Cancer, today lies between the constellations of Gemini and Taurus, and the southern solstitial point, instead of being in Capricorn, is in the constellation of Sagittarius, and constitutes a total travel of nearly 30 degrees to the westward in a period of about 2000 years.

Describes Egyptian Method of Computing Earth's Circumference

Now let's get back to the early Egyptian method of computing the world's circumference, as shown in Diagram No. 1. If one could imagine a plumb bob dropped from the center of the sun on June 22, the plumb bob in its effort to point towards the center of gravity of our earth would hang just over the Tropic of Cancer, and each day it would be seen to recede further south until six months later when on December 22 or 21 (depending on which side of the International Date Line you are) it would be over the Tropic of Capricorn, and in another six months, or a total of one year, it would be back and seen to be hanging over the imaginary line, which would be the Tropic of Cancer. It is at once seen that there could be only one day a year when the sun could cast no shadow in any direction around Obelisk A, and that would be when it was exactly vertically over Obelisk A. It is also immediately obvious that at the time of no shadow at Obelisk A there would be a shadow at Obelisk B (500 miles north of Obelisk A). When the sun was found to be exactly over Obelisk A, its angle above the observer's horizon at Obelisk A could have been no greater nor less than 90°, but at the instant it was observed over Obelisk A, a shadow was found to exist at Obelisk B, and the angle of this shadow was determined to have been 7° 12′ away from the vertical plumb, or, in other words, the angle between the sun and a vertical plumb line through Obelisk B was found to be 7° 12′. A glance at Diagram No. 1 will show the reader that if the sun were 7° 12′ away from a point vertically over Obelisk B, this would be the same thing as saying that the sun had an altitude above the observer's horizon at Obelisk B of 82° 48′.

Logic Plus Mathematics Gives Egyptians Answer

The Egyptians logically reasoned that there must have been a relation or proportion between the angle of the shadow measured at Obelisk B and the distance between the two obelisks. From here on, the solution of this problem became one of simple grammar school arithmetic. Resorting to ratio and proportion they continued thusly: 7 degrees 12 minutes (or 7.2 degrees—12 minutes equals 2 tenths of a degree) is to 500 miles as 360 degrees is to X, X being the quantity desired, or the earth's circumference. Expressed in schoolroom fashion

7.2:500::360:X

wherein the rule states "the means multiplied by each other and

(Continued on Page 6, Col. 1)

TOLD BORDER POLICE—"VE VASS JUS KIDDIN'!"

By G. R. SHOEMAKER
Council No. 22, AA
New York, N. Y.

Council No. 22, AA Colonial Division, is still the largest ALPA Council, but I don't know who all the members are, and can't keep track of them. New pilots are coming in every day, old ones are leaving, and the settled ones are on detached service. The wives themselves have a terrible time figuring out where the pilots are. Just the other day, an F. B. I. agent stopped next door asking questions about me which my wife would have had trouble answering.

This life has played havoc with the single boys and their love lives! So much so that when Sam Ross came back to this Council after a tour in Texas, he up and married that sweet little Irish girl. And reports have it that Lloyd Bidwell is about to take the same step.

Council Elections Approaching

Right now, Earl K. Ellis, Shoemaker, Charles Rickards, and Clifford Motley are in CG learning star gazing. Don Ogden is in FV assistant chief piloting, and Don Wood is in PS helping Bledsoe Payne and Louis Hulett. Our very able leader, "The Duke," is in FV, and the man we had up and coming for the job, Fran Bledsoe, the company stole from us to assist John Davidson on the cold water run.

Walt Hughen is very seldom seen these days, so we were left in quite a hole for leadership of our Council. Bill Shannon, our regular standby, is still in New York and was elected to the chair until the next regular election. In another month or so we will be voting for the membership of the Council. It looks like they will all be brand new men, so we better think now about whom we want in our inner circle this year.

A Merry-Go-Round of Names

Desmond Shipley, Daniel Boone, and Orville Brown have been in CG star gazing, but have now returned to New York. D. K. Smith has returned to this council and has rendered a lot of help in special conferences. Bill Dum seems to be back on the Island again, but I have not seen him. The report says Harold Grewe, Chuck Ryan, Paul Clough, and Len Klasmeier, our new captains, are still in New York.

"Ve Vass Jus Kiddin'!"

The only thing I know for sure is the story of Lou Ricks and pal, George Cassidy, crossing the bridge at Juarez in a practical joking frame of mind. The border official demanded their nationality.

"Ve iss Amurikans," they answered in deep guttural tones.

"What have you been doing?" they were asked.

"Oh, ve jus take a couple of pikshures," they answered.

Boy, was that funny! They were only detained a couple of hours by the border police.

To Boost the Morale

At the time of writing, we pilots are getting lots of rumors, reports, conferences, letters from the ALPA head man, and bulletins from the company. We don't know anything for sure. Maybe that is the idea. Maybe we are not supposed to know anything. We even got a letter from the company asking, "Do you or don't you wish to do so and so?" With no other ifs or ands about it, some people do not think we have much for brains. There are plenty of up and coming smart men in our company, and it seems that the morale at this time would be better if they could come up a little higher.

Changes Jobs

—Chicago & Southern Photo

The resignation, effective Dec. 1, of Amos Culbert, Vice-President and General Counsel of Chicago and Southern Air Lines, was announced recently. Mr. Culbert, one of America's leaders in aviation law, will become associated with American Airlines as Vice-President, Properties. Amos, as he is commonly referred to by the pilots, is an unassuming chap with a wealth of personality. He's not the split-collar, stiff-shirt-front type of barrister but at the same time knows his way about in that mystic profession of "hear ye, hear ye," "demurrer, demurrer," and "I object to practically everything," more commonly referred to as the science of jurisprudence. He is well liked by the pilots and they wish him well in his new position. He began his career in aviation with Chicago and Southern more than eight years ago when the company operated as the Pacific Seaboard Airlines between Los Angeles and San Francisco.

On, On, and On He Pedals—His Goal: Oblivion

—*United Air Lines Photos*

Capt. William G. Ditzen, United Air Lines' 2,000,000-mile Chicago-Denver pilot, has begun a course of action which, if pursued to its ultimate end, bids fair to make him one of aviation's immortals. We'll have to go back a bit to give you the whole word and picture story of how he can achieve this immortality. Let's start at home—Ditzen's home, we mean—which is at 4201 Grove street in Western Springs, Ill. When the rubber shortage became acute, the 2,000,000-miler decided that his home-to-airport transportation problem could best be solved by bicycling the 11 miles which separates them. In the picture story above, William is seen (1) kissing his vivacious and beautiful wife, Ellen, goodbye, as his dog, Timothy, looks on. (There's nothing wrong with your 20/20 vision, Bill. As a matter of fact you can probably see 20/15 with both eyes!) (2) Here he displays admirable cycling form as he glides past the railroad station at Western Springs. He looks as fresh as a daisy! (3) William has reached the end of the line 45 minutes later, and is shown here presenting his pass to Guard John Brady at United's airport entrance. Yep, he still looks chipper! (4) A quick change from shorts and sweatshirt to uniform, and William is pictured in the cockpit ready for the six-hour trip to Denver. That's what the pictures show; now for the statistics: to date he has made 22 trips and pedaled 484 miles, with a loss in weight of 13 pounds. It was a close study of these figures that gave us our first clue to his approaching immortality. These figures show that William is getting an average of 37.25 miles per pound. Without going into higher mathematics, and taking a conservative guess as to his present weight, we have reached the inescapable conclusion that along about July, 1943, William's weight will be exactly 00.00 pounds, and he will thus automatically become the world's first NON-EXISTENT air line pilot. From this point, the immortality part is not hard to figure out.

Study of Aviation Medicine Boosted

Research in the field of aviation medicine will receive a big boost forward when a new laboratory, now being built by the U. S. Health Service, is completed. Dr. Thomas Parran, Surgeon General, disclosed at a recent hearing before the House Appropriations Committee that the Navy made a request for the laboratory.

In this "World War of the Air" the need for more and more medical knowledge in the specialized field of aviation medicine is obvious, and many of the best laboratories in the world are now working on the problems of aviation medicine. Both Army and Navy have greatly expanded their research facilities, and have commissioned some of the leading doctors doing work in this field.

According to Parran, American and British experts are dividing some of the studies between them, one part being done here and the other part in England.

FARRIS TELLS MORE ABOUT EGYPTIANS

(Continued from Page 5)

divided by the extreme equals X," or expressed differently

$$\frac{7.2}{500} = \frac{360}{X}$$

Taking the trouble to work this out, X equals 25,000 miles. The above formula sets up on your circular aeronautical computer (slide rule) as follows: 7.2 on the outer periphery placed over 500 on the inner periphery shows quantity X, or 25,000 miles, on the inner periphery beneath the figure 360 on the outer periphery.

The answer of 25,000 miles is remarkably close, considering the equipment used; for, as most of you are aware, the earth is pretty close to 24,902 statute miles at its equatorial circumference and 24,860 statute miles at its Meridianal circumference.

Used Different Method for Measuring East-West Circumference

This did fairly well for measuring the distance in a north and south direction around the world, but still another method was chosen for measuring the east and west distance around the world based, as above, on ratio and proportion. Diagram No. 3 (not drawn to scale), shows a well or hole in the ground which was dug in such a latitude that a prechosen star would pass directly over its opening sighted by an observer at the bottom of the well, while 500 miles to the westward in precisely the same latitude another well was dug. Since well No. 2 was west of well No. 1, the same star would eventually pass over both of them. This gave them the following proportion: The time element between the two wells is to 500 miles as the total time element (the time elapsed between the star crossing well No. 1 and circling the earth and again crossing well No. 1) is to X, or

time:500 : : TIME:X = miles around the earth at the latitude of the wells (not at the equator).

Since the circumference of the earth was known in a north and south direction, its diameter, of course, was also known, and the Egyptians as geometricians could easily deduce the equatorial circumference.

It is not known how the Egyptians measured the time element, but it is known that they had access to various time devices such as water clocks, sand containers or glasses, and sun and star sighting dials.

Compares Diagram No. 1 to Old Schoolroom Problem

If, at first glance, Diagram No. 1 is not sufficiently comprehensive, you will perhaps recognize its basic elements in the old schoolroom problem in which the height of a tree was found by ratio and proportion. This was done by first measuring the tree's shadow on the ground (say it measured 75 feet) and then erecting a pole (say 10 feet) alongside the tree and measuring its shadow (say 8 feet). This established a ratio between the tree's shadow and the pole's shadow. Three elements were known and quantity X, the fourth (height of tree), was desired.

8:10::75:X = 93.75 feet (height of tree)

The purpose of this article is to point out that if the Egyptians could arrive at such measurements with such crude equipment and, as previously explained in last month's article, the Polynesians could navigate the Pacific Ocean with a coconut, surely with access to our modern equipment, navigation should not be too difficult.

In last month's installment, two errors were made, as follows: Page 7, line 10, the word "altitude" should have been "latitude." Page 7, next to last line, the word "type" should have been "true."—Editor.

PHYSICAL MAINTENANCE OF THE AIR PILOT

By ARNOLD D. TUTTLE, M. D.
Colonel, Medical Corps
U. S. Army, Retired

Colonel A. D. Tuttle, Medical Director of United Air Lines, is one of America's foremost aviation-medicine specialists, and this article by him contains many illuminating facts gleaned from the field of aero medicine through the medium of close association, both with United Air Lines and the Air Corps. Colonel Tuttle is a retired Army officer and back of him stands a long and commendable record of military medical service, which ended with a tour of duty as commandant of the School of Aviation Medicine at Randolph Field, Tex. The colonel came up from the ranks in the Army, studied medicine, won his M. D., and later was transferred to the Medical Corps. Colonel Tuttle has had more than average experience with the problems of maintaining air line pilots physically, and the following article presents some very interesting practical views. It was first published in the March 1942 edition of the "New International Clinics" and is reprinted with the permission of the publishers, the J. B. Lippincott Company of Philadelphia. The article will appear in the AIR LINE PILOT in a series of installments, the second of which follows:

After his technical proficiency, intelligence, aptitude, character, and moral qualifications have been passed upon and found to be satisfactory by other departments concerned, the pilot applicant is sent to the Medical Department for his pre-employment physical examination. There, while in the Medical Department, the applicant first fills in answers on a questionnaire sheet which delves deeply into his activities to date, with special emphasis on medical history, past and present. This questionnaire, along with the work sheet on which the results of his physical examination are recorded, starts his health record, should he be employed. Subsequently everything pertaining to his physical record throughout his period of employment goes into this health record file. Questionnaires covering the gap since the last physical examination also form a part of each periodic or special examination subsequently conducted.

Sense Organs. The physical examination usually starts off with the eye examination, because it is in that field that most causes for rejection are encountered in a pre-employment examination. The eye examination embraces about 20 steps, starting in with the determination of the sighting eye and ending up with a night-vision test. Color vision must be normal and visual-acuity and muscle-balance readings be within the prescribed acceptable standards.

The ear examination includes a test as to the patency of the Eustachian tubes and an audiometer determination conducted in a soundproof room.

The nose and throat examination includes a test for the sense of smell and a transillumination of the sinuses. A superficial dental examination is also performed to determine whether there are any indications as to the need of expert attention at the hands of a dentist.

In the general examination careful inquiry is made of each examinee as to any worries regarding domestic, financial, health or other troubles which might have a bearing on his physical condition. This applies to all examinations, in recognition of the fact that worries and flying are not compatible. Weight is carefully compared with the standard weight for one of the examinee's age and height. A vital capacity determination is made, followed later on by breath-holding tests and in some instances a tilt-table test. The prostate is examined routinely in all cases over 40 and before that age whenever indicated.

THE SCHNEIDER INDEX TEST, long an institution in aviation medicine as an indicator of circulatory efficiency and a talking point among all pilots, may not be familiar to some of the readers of this article. It includes the following factors: pulse rate reclining, standing, and immediately after exercise; elapsed time in seconds for a return of the pulse after exercise to the standing normal rate; systolic blood pressure reclining and standing. (Although they do not enter into the Schneider Index rating, most examiners also take diastolic readings reclining and standing because of their importance.) The highest possible score in the Schneider Index test is a plus 18. The average pilot will score around 14, which happens to be approximately the same score as will be found in any group of college athletes. This test is based on the knowledge that certain cardiovascular changes commonly occur as a result of fitness incident to athletic training and that these changes are reversed from lack of exercise or from fatigue or disease.

HEART. The examination of the heart includes an initial electrocardiogram, irrespective of the age of the examinee, with rechecks, if normal and without any intervening indications for same, every three years thereafter.

NERVOUS SYSTEM. The examination of the nervous system is given careful attention. It includes determination of the station, gait, reflexes, co-ordination, psychomotor tension, tics, tremors, carotid-sinus irritability, and a thorough search for evidence of any epileptoid equivalents. A history of any fainting episodes is looked upon with suspicion and carefully evaluated. Reaction time is taken routinely and a basal-metabolism rating is made whenever indicated.

LABORATORY EXAMINATION. As regards laboratory procedures, the wisdom of a wide range and thoroughness cannot be too strongly stressed. The urinalysis includes a microscopic examination in all cases. The blood examination is complete and includes, along with a serologic test, a blood typing for record purposes, using the Landsteiner International classification. (The examinee is informed as to the result and advised to note his blood type on his flying certificate or any other card ordinarily carried on his person in his billfold.)

LUNGS. A chest x-ray is taken routinely in all cases, along with any other x-rays which are indicated by reason of the examinee's past medical history. This particularly applies to a history of any head injuries.

In his searching examination the medical examiner must be constantly on guard against overlooking potential foci of infection.

Upon the conclusion of the pre-employment examination, a pilot, if he has successfully met the prescribed standards, then meets with the Medical Examiner in his office for a discussion of the findings, especially those in which there appear to be room for improvement through corrective measures, and also to permit of an appraisal of the examinee's personality make-up so as to exclude the possibility of a preponderance of traits which which might be objectionable and alone constitute a cause for rejection. (The same kind of conference between examinee and examiner follows each periodic examination, with special emphasis on all deviations from the normal and any corrective measures indicated.)

CONVENTION

It is planned, barring unforeseen happenings, to hold the 1942 convention of the Air Line Pilots Association in Chicago on Dec. 1, 1942.

—*Acme Photo*

ACES AND A QUEEN ***Five members of the Pan American Clipper crew who flew Queen Wilhelmina of the Netherlands from Great Britain to Canada June 18, receive tokens of her appreciation. Mr. T. Elink Schuurman, Netherlands Consul General of New York City, presented the mementos upon the instructions of the Dutch queen at a ceremony in the rotunda of the Marine Terminal, La Guardia Field. Pictured (L. to r.) are Schuurman; Charles H. Goodwyn, captain; Edward F. Norman, second officer; Donald W. Eno, fourth officer; S. P. McCrea, flight engineer, and Paul V. Darrow, radio officer.***

—*Press Association Photo*

HIEROGLYPHICS **The hieroglyphics may look difficult to read to these young student flight officers at the Army Flying School at Lubbock, Tex., but it's as easy as pulling a ripcord for Ng Wo, of San Francisco, Calif. The latter, a soldier at this advanced twin-engine bomber training school, translated the symbols thus: "The Lubbock Army Flying School is training enlisted men and officers to fly big bombers so they may blast Tokyo from the face of the earth." The officers are (L. to r.) 2nd Lieuts. Egbert M. Eidson of Centerville, Ark., and Robert F. Heller of Oak Park, Ill. Ng Wo was born in Canton, China, and came to the U. S. when he was 12, 16 years ago. He is well-sold on his adopted land and has a number of pet ideas of his own to even the score with the despoilers of his homeland—the Axis apes of the Pacific.**

Civil Air Regulations — Legislation

Additions - Changes - Amendments

CAR AMENDMENT 21-7
ADOPTED: JUNE 26, 1942,
EFFECTIVE: DECEMBER 7, 1941.

This amendment changes Part 21 "Air Line Transport Pilot Rating" as follows:

Section 21.24 is amended to read:

"21.24—Duration. An air line transport pilot certificate shall be of 60 days' duration and, unless the holder thereof is otherwise notified by the Administrator within such period, it shall continue in effect thereafter, until otherwise specified by the Board, unless suspended or revoked."

The following section 21.25 is substituted for sections 21.25, 21.250 (a), and 21.251 (b):

"21.25—Expired certificates: special issuance. The holder of an air line transport pilot certificate which has expired within the preceding 12 months, upon application, may obtain a new air line transport pilot certificate and aircraft rating to pilot aircraft of the same type and with the same special rating theretofore held immediately prior to its expiration, by demonstrating to the satisfaction of the Administrator that he is qualified to hold the certificate and rating sought."

Section 21.42 is amended to read:

"21.42—Recent experience requirements.

"21.421—Without passengers. A certificated air line transport pilot who within the preceding 6 calendar months has not made and logged at least 3 take-offs and 3 landings to a full stop in aircraft of the type and class to be flown, shall not pilot such aircraft until he has made 3 take-offs and 3 landings to a full stop therein, accompanied by a certificated pilot of at least private grade holding an appropriate type, class and horsepower rating.

"21.422—Passenger flight (day and night). A certificated air line transport pilot shall not pilot an aircraft carrying any person other than the members of the crew thereof, certificated airmen carried in air carrier aircraft in furtherance of their official duties, or a certificated instructor rated for the aircraft operated, unless within the preceding 3 calendar months he shall have made and logged at least 3 take-offs and landings to a full stop in an aircraft of the same type and class as that of the aircraft in which such person is carried. A certificated air line transport pilot shall not pilot such aircraft between sunset and sunrise unless he has made at least one of the 3 required take-offs and landings between sunset and sunrise.

"21.423—Instrument flight. A certificated air line transport pilot who within the preceding 6 calendar months has not flown and logged at least 2 hours of flight time solely by reference to instruments under either actual or properly simulated instrument flight conditions, shall not pilot an aircraft under such conditions until he has flown and logged at least 2 hours of such flight time accompanied by a certificated pilot of at least private grade holding an appropriate type, class and horsepower rating for the aircraft, and authorized to operate aircraft under instrument conditions."

A new section is added as follows:

"21.444—Reports. The holder of an air line transport pilot certificate shall furnish the authorized air line medical examiner of the Administrator, at the time of each physical examination to be forwarded by him to the Administrator, a report setting forth the amount and type of his aeronautical experience and such other pertinent data as the Administrator may require since his last preceding report."

SPECIAL REGULATION 236
ADOPTED: JULY 30, 1942,
EFFECTIVE: JULY 30, 1942.

"An airman certificate of Assistant Airline Transport Pilot grade may be issued by the Administrator of Civil Aeronautics to pilots listed in the operations specifications of scheduled air carriers engaged in overseas or foreign air transportation:

"Provided, That such pilots are holders of currently effective commercial pilot certificates with proper aircraft and instrument ratings: Provided further, That such certificates shall authorize these pilots to serve as first pilots in scheduled air transportation carrying cargo and mail only and shall not be effective beyond January 1, 1943."

SPECIAL REGULATION 237
ADOPTED: AUGUST 15, 1942,
EFFECTIVE: AUGUST 15, 1942.

"Notwithstanding the provisions of sections 61.3220 and 61.3230, scheduled air carriers in air transportation may operate multiengine land aircraft on a direct route between Oakland Municipal Airport, Oakland, California, and San Francisco Municipal Airport, San Francisco, California, over the San Francisco Bay at a distance beyond gliding distance (power off) from shore when such operation is authorized by the Administrator."

New Tail Light Use Begins Jan. 1

(Continued from Page 1)

light mechanism was developed.

First Test Run Off on Oct. 7, 1941

The first actual test in the air was run at the Washington National Airport on Oct. 7, 1941. The plane used was furnished by American Airlines, and the experts who witnessed the test from another plane were greatly impressed with the effectiveness of the new type blinking tail light. Improvements were recommended and other tests followed.

An amendment has been added to the CAR which was first made effective Nov. 1, 1942, but later changed to become effective on Jan. 1, 1943. This amendment reads:

"15.2015—**Air carrier airplane rear position lights.** Air carrier airplane rear position lights shall emit an alternate aviation red and aviation white flash repeated at a frequency of 40 cycles a minute; each cycle shall have the following characteristics: 150 degrees white—10 degrees dark—150 degrees red—50 degrees dark. A tolerance of plus or minus 10% will be allowed in the above figures. Both white and red lights shall be fitted with 32 candlepower lamps. The red and white units of the light may be separate units spaced as closely as possible. Each color of light shall be completely visible in dihedral angle A. If separate red and white units are used, certificated white tail lights may be converted into such units as follows: (a) the candlepower of the lamp shall conform to the requirements of this section, (b) the clear cover glass for the intended red unit shall be replaced by a red cover glass of the same design. No photometric tests of such converted lights will be considered necessary when the above changes are made. If the light is of a new type, it shall emit light in all directions in dihedral angle A as specified in section 15.2014."

"**Color.** All left forward position lights shall be aviation red, all right forward position lights shall be aviation green, and all rear position lights for non-air carrier aircraft shall be aviation white."

Behncke Calls Lights a Success

The reason for the postponement of the effective date of this amendment is the usual material priority difficulties which make the manufacturing of this new flashing type tail light impossible until some time during 1943.

On Oct. 4 David L. Behncke, ALPA's President, while flying to Washington, chanced to see a plane equipped with the new flashing tail light pass in the night. He said, "Anybody who can't see that and know that it's an air liner will have to be blind in one eye and not be able to see out of the other. It looks like success."

NEW BOOKS

Meteorology

Using 155 diagrammatic illustrations as the backbone of a practical handbook of meteorology, Peter E. Kraght's *Meteorology for Ship and Aircraft Operation* trims ponderous theoretical considerations to the bone. The book is small and compact, and is planned as a substantial textbook and handbook for the training and everyday use of aviators, aerial navigators, and mariners.

Starting with a lucid explanation of such meteorological essentials as Humidity, Temperature, Atmospheric Pressures, etc., the book takes up in detail Vertical and Horizontal Winds and their Weather. Cumulus and other Clouds, Precipitation, Warm and Cold Fronts, Cyclonic and Anti-Cyclonic Wind Systems are thoroughly discussed, together with Fog and other Low Clouds. Glossaries of winds and technical terms, and 21 practical tables round out the book.

Mr. Kraght's qualifications to write such a book are of the highest, as for a number of years he had been senior meteorologist of American Airlines. His knowledge of what air line pilots need to know about meteorology comes from intimate firsthand contact.

METEOROLOGY FOR SHIP AND AIRCRAFT OPERATION by Peter Kraght. Cornell Maritime Press. 373 pp. $3.00.

INEFFICIENCY PERSONIFIED

A parachute trooper had been going through months of careful training and the time finally arrived for him to make his first jump with full equipment. When the moment came for him to leap from the yawning door of the giant speeding troop transport into the great void below, his sergeant gave him some last-minute advice. Said the sergeant: "If you carefully follow instructions you can't get into any trouble! After you've jumped clear, pull this *white* rip cord here on your chest. That will open your main parachute and you will float gently to earth. If, when you pull this *white* cord, nothing happens, pull the other rip cord on your chest, which is painted *blue*, and that will open your emergency chute." The sergeant added in a matter-of-fact way, "I have sent a truck to pick you up when you land." Having been thus carefully instructed, the trooper jumped, and pulled the white cord. Nothing happened. He then pulled the blue cord, and much to his disgust, still nothing happened. This made him exceedingly angry and he flung the rip cord away, and with a stream of choice profanity said: "Nothing seems to be working around here this morning. I'll just betcha that they'll forget to send that g—d d—mned truck out to pick me up!"—HOLD THE PHONE!

* * *

S-KAT ABOVE!

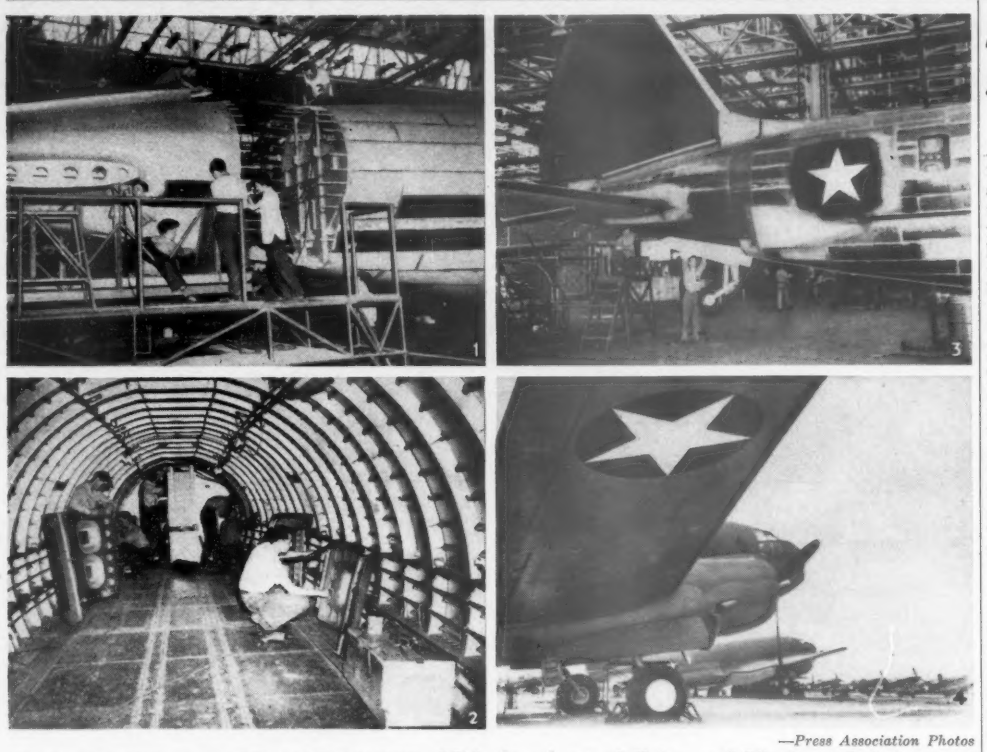
"Me-o-w-w, mrrowrr, spiff, spiff, sput, phuft, f-f-tt, hiss!" which in cat language means, "Look out below, all you mangy hounds!" Here comes the Puss-Paratroops to start some really tough guerilla warfare in the rear of the line of doghouses. This puss shock-trooper of that ferocious feline combat division known as the "Parakit Brigade," is shown as he floats through the air to make a surprise assault on the citadel of his traditional enemy. "Touser," who is taking a nap on the doghouse veranda and whose only defense is a bone buried in the back yard, probably figures he has everything under control. He is in for a rude awakening, however, because this Parakit's demure expression and soft-looking paws are only camouflage for a "spitting" temper and needle-sharp claws. Next feline communique will probably recount that instead of puss being up the customary tree, Touser will be in her position—out on the end of a limb. Their owner, Pearl Hall of Acworth, Ga., reported that the Parakit Brigade was inspired by the daring and skill of paratroops at Fort Benning. She reports the kittens enjoy jumping from a 12-foot training platform.

* * *

"WE DOOD IT!"

You are no doubt well aware of the fact that the "Imagine That" column is reserved exclusively for the unusual, the unique, and the humorous. Thus we are but following a hoary, ivy-clad AIR LINE PILOT tradition when we print the following story here. Briefly and bluntly stated, the AIR LINE PILOT made an error in the August issue; an error that was called to our chagrined attention by not one, but several people. We won't go so far as to say that we are dying of a broken heart (because we can "take it" as well as "dish it out!"), but we do have certain sharp pangs of remorse. What makes this tragic error even more bitter to us is the fact that it is the ONLY error to "get by" in nearly 12 years of journalistic endeavor. Add to this horrifying mistake the fact that we even printed a picture to illustrate it, and you can get a faint idea of its malignant magnitude. Philosophically speaking, it does sort of make an editor feel a bit like a polar bear at the equator to know that when, after a dozen years of meticulous checking and double-checking of the facts he prints, one "teenie-weenie" mistake can creep in and sabotage a reputation built up through the years. Our woes began in August, when we published a picture showing Miss Dorothy Mackay of United Air Lines giving instruction on a Link trainer and stating that she is the "only woman air line

Link trainer operator in the world." First, the statement backfired on us when Scribe Arthur Foster of Council No. 2, TWA, New York, declared in this month's newsletter that TWA has had feminine Link trainer operators for some time. Then, Mr. Charles E. McGee, Pan American Airways publicity representative, further "blasted" our story by sending the above picture showing Miss Maude Hooker, one of PAA's staff of girl operators, talking over a training problem with Junior Pilot Albert S. Da Pozzo. There it is, the whole uncensored, unvarnished story of an unheard-of happening—a mistake in the AIR LINE PILOT. We apologize to you and you and you, too!



—*Press Association Photos*

BUILDING A TRANSPORT **With the advent of Kaiser and Higgins and their manufacturing genius, and with military transport by air looming ever larger and larger in the over-all aviation scene, these pictures showing a number of steps in the construction of a Curtiss Commando (C-46) are of unusual interest. The transports are being built for the U. S. Army Air Forces at Buffalo, N. Y. (1) Mechanics work on a fuselage section before the transport becomes a single, perfect plane. (2) This shows the interior of the huge fuselage. Plane is designed to carry troops and mobile equipment to farflung fronts, has a 108-foot wingspread, two 2,000-horsepower motors, and weighs 50,000 pounds fully loaded. (3) Already bearing the large Army star, the ship is pictured getting the final touches from expert mechanics. (4) Completed and rolled out of the factory, this C-46 takes its place in the delivery line, waiting only for the pilots to "fly 'er away!" Latest news reports concerning the cargo plane building aspirations of Shipbuilder Andrew Jackson Higgins, New Orleans, are that he will get an Army contract to produce 1,200 Curtiss Commandos.**

Seventh ALPA Convention Plans Well Under Way

(Continued from Page 1)

Relations, Air Transport Association. Representing the pilots were O. M. Nelson, UAL; W. H. Smiley, TWA; L. W. Harris, AA; and David L. Behncke, ALPA President. Acting in an advisory capacity to the pilot conferees just named were D. K. Smith, AA; J. M. Roberts, UAL; F. G. Richardson, ICD-TWA; and Paul Frederickson, TWA.

The copilots were represented at these conferences by D. E. Casey of UAL. Other copilot conferees were W. G. Malvick, TWA, and W. S. McCormick, AA. Up to the present time not a great deal has been said in these talks about copilots' salaries for overseas intercontinental operation.

Mediation Questions Discussed

Before mediation actually got under way in Washington, the question of what was actually in mediation, and whether it was submitted individually or collectively, caused considerable argument. These arguments centered around the relative merits of the pilots' negotiating employment agreements or supplements thereto with individual air carrier companies, or carrying on negotiations covering more than one company. After this question had been explored it was agreed that there was nothing in the Railway Labor Act as amended which compelled the pilots to deal with a group of companies instead of separately.

Pilots Prefer to Negotiate Separately

This interpretation had a considerable atmosphere-clearing effect, which substantiated the pilots' position, which was that they had always dealt separately with the air carriers in making working agreements and preferred to continue in this manner to negotiate such agreements. The pilot conferees, however, took the position that they had no objection to discussing certain problems with the air carriers collectively, provided that whatever was arrived at affecting each of such carriers and their pilots would be written into the employment agreements previously established between each of the companies and its pilots.

Talks Temporarily Suspended

The meetings started with a bang, but soon slowed up to the long steady grind that is typical of mediation. On the eighteenth day of conferences, Oct. 22, Mediator Bickers suspended mediation until the following Tuesday, Oct. 27. Before temporarily adjourning the proceedings, however, the pilot conferees furnished Mr. Bickers their rock-bottom pay proposal for first pilots. They accompanied this with the statement that they would be glad to do the difficult job of overseas intercontinental flying involved for the amounts stipulated, and if this was not satisfactory to the carriers, they would rather do the job in uniform than see their hard-fought-for salary standards and other conditions of employment destroyed.

All of the ALPA Chairmen have been informed of the current status of this matter and the only development there has been up to the time this issue of the AIR LINE PILOT goes to press is that Mediator Bickers called Headquarters on Monday, Oct. 26, and asked several additional questions, clarifying in nature, and left instructions that the pilot conferees and their advisors should stand by pending further developments.

Pres. Behncke Makes Statement at Air Space Control Meeting

The Air Safety Committee of the House of Representatives, headed by Congressman Jack Nichols, held a very significant hearing on Oct. 15 relating to the advisability of creating legislation to give the Federal government control of the air space of the United States.

Those attending this conference were: L. Welch Pogue, Chairman, CAB; George C. Neal, General Counsel, CAB; Stuart G. Tipton, Assistant General Counsel, CAB; William A. M. Burden, Special Assistant to the Secretary of Commerce; Robert P. Boyle, Assistant General Counsel, CAA; Edward B. Bowers, Bureau of the Budget; Edgar S. Gorrell, President, Air Transport Association; Howard C. Westwood, Attorney, ATA; Jack T. Gray, Manager, Technical Department, Aeronautical Chamber of Commerce of America, Inc.; Rep. Jack Nichols, Chairman, Rep. Carl Hinshaw, Rep. Everett M. Dirksen, Rep. Herron Pearson, members of the Select Committee to Investigate Air Accidents; Committee Attorney Irving G. McCann; and David L. Behncke, President, Air Line Pilots Association.

Mr. Behncke placed an 1,800-word statement in the record representing the viewpoint of the air line pilots on this very important question. The text of his statement will appear in the November AIR LINE PILOT. He made a strong plea for a practical, common-sense approach to the entire problem, and was in accord with that phase emphasized by Representative Nichols in a part of his opening remarks: "What we must not forget in the legislation we are considering is that we must write something into the bill which will prevent the construction of an elevator at the end of the northeast runway."

The conference lasted for the greater part of the forenoon, and at its conclusion all were in agreement that the time had arrived in the development of our country's aviation transportation network, both military and commercial, to clear up the dilemma that is becoming daily more scrambled; namely, who should control the air spaces of the United States—the Federal Government or the States.

Chairman L. Welch Pogue of the CAB finally consented to write the first draft of an air space control bill which will be made the subject of future discussions by the above named group.

Plan Streamline Convention Due to the War

Spending so much time in Washington caused much work to pile up at Headquarters. This has since been almost all liquidated, and the work of preparing for the 1942 Convention, which will convene on Dec. 1, is well under way.

Due to the war and many other time-consuming elements currently in the pilot-representing picture, a decided attempt will be made to streamline the 1942 Convention, which will be the seventh held by the ALPA during its slightly more than ten years of operation. The ALPA officials have high hopes that it will be possible to complete the work of the Association's 1942 annual meeting in three days. At least that is the mark they are shooting for. This will necessitate a convention floor procedure devoid of all time-wasting factors, such as excessive debate and meaningless arguments.

BOX SCORE

Feb. 1 - Sept. 20

Planes Destroyed by

U. S.	Axis
279	**114**

Scribe Does Some Apple Polishing

(Continued from Page 2)

new four-hummer about a week ago. Oh, yeah—Jack is Superintendent of Western Operations flying West—get it? Jumpy sure has a lot of room to jump around in his new pet—he oughtta be happy now. Mr. Reeder (he's my boss now) is Superintendent of Western Operations flying East, North, and South (sure is complicated, isn't it?). Larry Broeren is Paul's assistant, and everyone agrees that we have three bosses that can't be beat. Boy, now I can peek on my next hood check—huh, Larry? Maybe I can even pull up the wheels on Jack's new little gem—real gentle like!

Turn Them Out "Hotter Than Firecrackers"

Bob Shirley and Jack Gillespie are in Reno checking out some of the junior boys for cargo runs. Maybe I should have said "sweating" the boys—some day somebody's gonna find an on-course on Reno and get lost. Bob and Jack will really turn them out hotter than firecrackers—or else. All they need up there now is Ralph Johnson to show the youngsters how to become a dependent in three easy lessons. Johnny, I believe, learned in one evening at a crap table. Johnny is one of the boys who's been star-gazing, getting ready to go some place. I hear he's trying to get three of a kind inside the bubble. That's not the idea, Johnny—it won't pay off.

Just Plugging Along

Jim Belding, Dick Fregulia, Frank Erickson, Leo Kriloff, Cecil Odell, Elmer Schwarz, and Dave Stephens are about the only ones not covered so far. They're in the same boat as the rest of the outcasts—just plugging along between 'Frisco and Salt Lake.

Well, boys, there it is. If I have succeeded, you'll all be so d — — mad that you'll elect a new correspondent—I hope! I nominate "Chubby" McBain.

TO CUT EXPENSES PUT 'EM IN BARN

A large percentage of the pilots wish that the Army would take over the air lines for the duration. Maybe the officials would quit talking about what would happen to the pilots. It is like a remark by Bob that the air lines could cut out a lot of overhead if they would lock the planes in the hangars and fire the pilots. This was in answer to a statement by an air line official that flying was a small part of running an air line.

Disagrees With Admiral Hart

Recently Admiral Tommy Hart wrote a scorcher in the *Saturday Evening Post* defending the decadent views of the old line Navy bigwigs. What the dear admiral forgot was that torpedo planes are still air power and that air power decides battles before the surface craft come within days' steaming distance of one another.

If you have not read *Victory Through Air Power*, do so immediately. Maj. Alexander P. de Seversky does indulge in a little diatribe with some euphuism thrown in places, but put it on your *must read* list. The message in his book deserves support.

Powder-Puff Priority

The other day a Panagra pilot told me some priority express broke open on his plane. It was evening dresses shipped from a New York firm to the ladies of the American Embassy in Lima. If that is priority, then I'd better ride my bicycle to the airport!

The Delicate Matter of Balance

A recent article in *American Aviation* quoted General Whoosis as saying that what we need is a well-balanced Army: aviation, chemical, tanks, transport, and supply. Well, I suggest we balance the Air Corps. I have always heard we had pursuit, bombardment, attack, observation, and transport. I have yet to see a news release where pursuit, attack, and bombardment acted as a team. Perhaps they do.

The biggest over-all failure of the Government to date has been the utter lack of a unified national air policy. Air power, as such, has not received the green light in Washington!

—TAIL-WIND PEET

THIS IS THE KIND OF SPRAY WHICH DEFINITELY MAKES THEM TURN OVER AND SAY "UNCLE". WHEN I'M FINISHED THEIR ZERO PLANES WILL REALLY BE O!
U.S. AIR FORCE
U.S.A.
GENE MARRIN